

REMARKS

Claims 1-33 are pending in this application. Applicant respectfully requests reconsideration and allowance of the subject application.

A teleconference with Examiner Burgess was held on January 14, 2004. During the teleconference, the Examiner confirmed that the December 31, 2004 Office Action was non-final because Claim 9 was rejected for the first time in that office action. Applicant submits this response in accordance with this understanding.

35 U.S.C. § 103 – Saether and Strong

Claims 1-5, 10-12, 14-19, 22, 29 and 31-33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,405,219 to Saether et al. (hereinafter “Saether”) in view of U.S. Patent No. 5,689,688 to Strong et al. (hereinafter “Strong”).

Claim 1 recites:

A method of synchronizing data among a plurality of web servers, wherein each of the plurality of web servers is coupled to a common data server, the method comprising:

- retrieving a scheduled activation time from the data server;
- prior to the scheduled activation time, retrieving updated data into staging caches in the plurality of web servers; and
- at the scheduled activation time, copying the updated data from the staging caches within each of the plurality of web servers to an active cache within each of the plurality of web servers.

Thus, Claim 1 is directed at synchronizing data in multiple web servers using a scheduled activation time that is retrieved from a common data server. Updated data are retrieved into staging caches in the web servers. By copying

1 updated data from the staging caches to active caches within the web servers at the
2 scheduled activation time, the web servers are concurrently synchronized. Neither
3 Saether nor Strong discloses this method of synchronizing data.

4 Saether teaches a method and system for automatically updating the version
5 of files stored on content servers. A set of source files on a global server is copied
6 to a directory created on a content server. The version of the set of source files
7 stored on the content server is updated by renaming the current version of each
8 source file copied to the directory on the content server. (Saether, col.1, line 51 to
9 col. 2 line 3). Thus, Saether merely teaches the use of a global server to provide
10 updated source files to content servers in a network. However, nothing in Saether
11 teaches or suggests a method for synchronizing the source files among multiple
12 content servers using a "scheduled activation time".

13 The Office Action admits that Saether does not explicitly disclose
14 "retrieving a scheduled activation time from the data server". However, the Office
15 Action argues that Saether can be combined with the teachings of Strong to reject
16 Claim 1. Strong discloses a probabilistic anonymous clock synchronization
17 method and apparatus for synchronizing a local time scale with a reference time
18 scale. The Office Action cites Strong at col. 2, lines 7-15 and col. 9, lines 32-34
19 and 51-53. These cited sections describe a technique for a master node in a
20 network to synchronize time for the other nodes by sending time update messages
21 to those nodes. Thus, the technique described in Strong merely allows a node in a
22 network to synchronize its clock with a master node serving as a reference time
23 source. But this technique does not provide the node with a "scheduled activation
24 time" for synchronizing data with other nodes.

1 Nothing Saether or Strong suggests combining the two references. Even if
2 Saether and Strong can be combined, the clock synchronization method in Strong
3 would merely allow the global server and the content server in Saether to operate
4 in accordance with the same time reference. However, the combination of Saether
5 and Strong still does not teach or suggest synchronizing data among web servers
6 with a “scheduled activation time” retrieved from a data server, as recited in Claim
7 1.

8 For at least these reasons, Applicant respectfully submits that Claim 1 is
9 allowable over Saether and Strong. Given that Claims 2-5, 10-12 and 14 depend
10 from Claim 1, Claims 2-5, 10-12 and 14 are also allowable over Saether and
11 Strong for at least the same reasons.

12 Claim 15 recites:

13 A system comprising:
14 a plurality of web servers coupled to a common data server, wherein
15 each of the plurality of web servers comprises:
16 a staging cache;
17 an active data cache coupled to the staging cache;
18 wherein the web server is configured to retrieve a scheduled
19 activation time from the data server, and further configured to
20 retrieve updated data from the data server into the staging cache
21 prior to the scheduled activation time; and
22 wherein the web server is configured to copy data from the staging
23 cache to the active data cache at the scheduled activation time.

24 Specifically, claim 15 states that the web server is configured “to retrieve a
25 scheduled activation time from the data server” and “to copy data from the staging
cache to the active data cache at the scheduled activation time”.

The Office Action rejects Claim 15 based on the same reason for rejecting

1 Claim 1. As discussed above, neither Saether nor Strong (alone or in
2 combination) teaches or suggests synchronizing data among multiple servers using
3 a "scheduled activation time". Thus, for at least these reasons, Applicant
4 respectfully submits that Claim 15 is allowable over Saether and Strong. Given
5 that Claims 16-19 and 22 depend from Claim 15, Claims 16-19 and 22 are also
6 allowable over Saether and Strong for at least the same reasons.

7 Claim 29 recites:

8 A method of synchronizing data among a plurality of web servers,
9 wherein each of the plurality of web servers is coupled to a common data
10 server, the method comprising:

11 providing a scheduled activation time from the data server to each of
the plurality of web servers;

12 communicating updated data into a staging cache in each of the
plurality of web servers prior to the scheduled activation time; and

13 copying data from the staging cache in each of the plurality of the
web servers to an active cache in each of the plurality of the web servers at
14 the scheduled activation time.

15
16 Particularly, the method of claim 29 includes "providing a scheduled
17 activation time from the data server to each of the plurality of web servers" and
18 "copying data from the staging cache in each of the plurality of the web servers to
19 an active cache in each of the plurality of the web servers at the scheduled
20 activation time". As discussed above, neither Saether nor Strong (alone or in
21 combination) teaches or suggests synchronizing data among multiple servers using
22 "a scheduled activation time". Thus, for at least these reasons, Applicant
23 respectfully submits that Claim 29 is allowable over Saether and Strong. Given
24 that Claims 31-33 depend from Claim 29, Claims 31-33 are also allowable over
25 Saether and Strong for at least the same reasons.

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2 **35 U.S.C. § 103 – Saether, Strong and Hagersten**

3 Claims 6 and 30 stand rejected under 35 U.S.C. §103(a) as being
4 unpatentable over Saether in view of Strong and in further view of U.S. Patent
5 No. 5,958,019 to Hagersten et. al (hereinafter “Hagersten”).

6 Claims 6 and 30 recite:

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8 6. A method as recited in claim 1 wherein retrieving updated
9 data into staging caches in the plurality of web servers is performed
asynchronously.

10 30. A method as recited in claim 29 wherein the communicating
11 updated data into a staging cache is performed asynchronously.

12 As discussed above, neither Saether nor Strong (alone or in combination)
13 teaches or suggests synchronizing data among multiple servers using a “scheduled
14 activation time”, as recited in independent Claims 1 and 29. The teachings in
15 Hagersten fail to remedy these deficiencies.

16 The Office Action admits that Saether, in view of Strong, does not
17 explicitly disclose the subject matter in Claims 6 and 30. However, the Office
18 Action argues that Saether and Strong can be combined with the teachings of
19 Hagersten to reject Claims 6 and 30. Hagersten teaches a multiprocessing system
20 configured to perform synchronization operations. For rejecting Claims 6 and 30,
21 the Office Action cites Hagersten at col. 2, lines 47-58; col. 3, lines 19-23; col. 28,
22 lines 6-14; and col. 30, line 27. These cited materials describe a computer system
23 that enables asynchronous operations to alleviate performance degradation and
24 executes synchronization operations to guarantee global completion of those
25

1 asynchronous operations. However, nothing in Hagersten teaches or suggests
2 asynchronously retrieving or communicating updated data into staging caches in
3 servers, as recited in Claims 6 and 30. Therefore, the combination of Saether,
4 Strong and Hagersten fails to teach or suggest all elements of Claims 6 and 30.

5 For at least these additional reasons, Applicant respectfully submits that
6 Claims 6 and 30 are allowable over Saether, Strong and Hagersten.

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8 **35 U.S.C. § 103 – Saether, Strong and Yamazaki**

9 Claims 7 and 20 stand rejected under 35 U.S.C. §103(a) as being
10 unpatentable over Saether in view of Strong and in further view of U.S. Patent No.
11 5,923,855 to Yamazaki (hereinafter “Yamazaki”).

12 Claims 7 and 20 recite:

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14 7. A method as recited in claim 1 further comprising:
after the scheduled activation time, updating data caches in the data server.

15 20. A system as recited in claim 15 wherein each of the plurality of web
16 servers is configured to update data caches in the data server after the scheduled
17 activation time.

18 As discussed above, Saether and Strong fail to teach or suggest (alone or in
19 combination) synchronizing data among multiple servers using a “scheduled
20 activation time”. Thus, Saether and Strong also fail to teach or suggest updating
21 data caches in a data server after the scheduled activation time, as recited in
22 Claims 7 and 20. The teachings in Yamazaki do not remedy these deficiencies.

23 The Office Action admits that Saether, in view of Strong, does not
24 explicitly disclose after the scheduled activation time, updating data caches in the
25

1 data server. However, the Office Action argues that Saether and Strong can be
2 combined with the teachings of Yamazaki to reject Claims 7 and 20. Yamazaki
3 discloses a multi-processing system and method for synchronizing among
4 processors with cache memory having reset state, invalid state and valid state.
5 The Office Action cites Yamazaki at col. 1, lines 19-24 and col. 5, lines 48-57,
6 which describe updating data stored in cache memories of different processors in a
7 multi-processor system. However, Yamazaki still fails to teach or suggest
8 updating data caches after a scheduled activation time, as recited in Claims 7 and
9 20. Therefore, the combination of Saether, Strong and Yamazaki fails to disclose
10 or suggest the elements of Claims 7 and 20. For at least these additional reasons,
11 Applicant respectfully submits that Claims 7 and 20 are allowable over Saether,
12 Strong, and Yamazaki.

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14 **35 U.S.C. § 103 – Saether, Strong and Sakon**

15 Claims 8-9 and 21 stand rejected under 35 U.S.C. §103(a) as being
16 unpatentable over Saether in view of Strong and in further view of U.S. Patent
17 No. 5,796,946 to Sakon (hereinafter “Sakon”).

18 Claims 8-9 and 21 recite:

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20 8. A method as recited in claim 1 further comprising:
21 after the scheduled activation time, calculating a next scheduled
activation time.

22 9. A method as recited in claim 1 further comprising:
23 after the scheduled activation time, updating data caches in the data
24 server and calculating a next scheduled activation time, wherein the
25 updating and calculating are performed by the first web server to initiate a
retrieval process after the scheduled activation time.

1 21. A system as recited in claim 15 wherein each of the plurality
2 of web servers is configured to calculate a next scheduled activation time
3 after the scheduled activation time.

4 As discussed above, neither Saether nor Strong teaches or suggests (alone
5 or in combination) synchronizing data among multiple servers using a “scheduled
6 activation time”. Thus, Saether and Strong also fail to teach or suggest calculating
7 such a time in a manner as recited in claims 8-9 and 21. The teachings in Sakon
8 do not remedy these deficiencies.

9 The Office Action admits that Saether, in view of Strong, does not
10 explicitly disclose calculating the next scheduled activation time. However, the
11 Office Action argues that Saether and Strong can be combined with the teachings
12 of Sakon to reject Claim 1. Sakon discloses multi-processor system barrier
13 synchronizer not requiring repeated initializations of shared region. The Office
14 Action cites Sakon at col. 8, lines 25-40 and 54-58, which includes “a calculation
15 means for calculating a next barrier value”. The barrier value is used to
16 synchronize processors in a multi-processor system. (Sakon, Abstract). However,
17 nothing in Sakon teaches synchronizing data among multiple servers using a
18 scheduled activation time or calculating such a time. Therefore, the combination
19 of Saether, Strong and Sakon fails to teach or suggest the limitations of claims 8-9
20 and 21.

21 For at least these additional reasons, Applicant respectfully submits that
22 Claims 8-9 and 21 are allowable over Saether, Strong and Sakon.

23 **35 U.S.C. § 103 – Saether, Strong and Brendel**
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1 Claim 13 stands rejected under 35 U.S.C. §103(a) as being unpatentable
2 over Saether in view of Strong and in further view of U.S. Patent No. 5,774,660
3 to Brendel et al. (hereinafter "Brendel").

4 Claim 13 recites:

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6 A method as recited in claim 1 wherein the plurality of web servers
7 comprise a web farm, and wherein the plurality of web servers are load
8 balanced using a domain name service (DNS) round-robin technique.

9 As discussed above, neither Saether nor Strong teaches or suggests (alone
10 or in combination) a method for synchronizing data among multiple servers using
11 a "scheduled activation time", which is the subject matter recited in Claim 1.
12 Brendel discloses a world-wide web server with delayed resource-binding for
13 resource-based load balancing on a distributed resource multi-node network.
14 Although Brendel teaches the use of DNS, nothing in Brendel remedies the
15 deficiencies of Saether and Strong discussed above. Thus, the combination of
16 Saether, Strong and Brendel fails to teach or suggest the elements recited in Claim
17 13. For at least these reasons, Applicant respectfully submits that Claim 13 is
18 allowable over Saether, Strong and Brendel.

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20 **35 U.S.C. § 103 – Saether, Strong, Yamazaki and Sakon**

21 Claims 23-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable
22 over Saether in view of Strong in further view of Yamazaki in further view of
23 Sakon.

24 Claim 23 recites:
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1 One or more computer-readable media having stored thereon a
2 computer program comprising the following steps:
3 retrieving a scheduled activation time from a data server;
4 prior to the scheduled activation time, retrieving updated data into a
5 staging cache in a server;
6 at the scheduled activation time, copying data from the staging cache
7 in the server to an active cache in the server; and
8 after the scheduled activation time, updating data caches in the data
9 server and calculating a next scheduled activation time.
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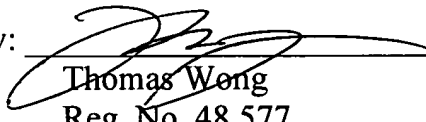
11 As discussed above, nothing in Saether, Strong, Yamazaki, or Sakon (alone
12 or in combination) teaches or suggests synchronizing data among multiple servers
13 using a scheduled activation time, updating of data caches after a scheduled
14 activation time, or calculating a next scheduled activation time. Thus, the
15 combination of these references still fails to teach or suggest the subject matter of
16 Claim 23. For at least these reasons, Applicant respectfully submits that Claim 23
17 is allowable over Saether, Strong, Yamazaki and Sakon. Given that Claims 24-28
18 depend from Claim 23, Claims 24-28 are also allowable over Saether, Strong,
19 Yamazaki and Sakon for at least the same reasons
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1 **Conclusion**

2 Claims 1-33 are now in condition for allowance. Applicant respectfully
3 requests the issuance of the subject application. Should any matter in this case
4 remain unresolved, the undersigned attorney respectfully requests a telephone
5 conference with the Examiner to resolve any such outstanding matter.
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8 Respectfully Submitted,

9 Date: 3/31/2004

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